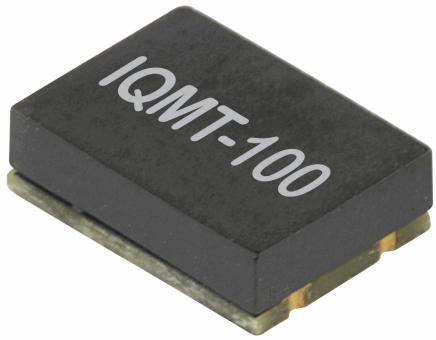
ISSUE 2; April 2016

Description

- Microcomputer Compensated Crystal Oscillator (MCXO), available with or without voltage control.
  Please note: This document is intended to illustrate the general capability and versatility of IQD's design. For specific enquiries please contact one of IQD's Sales Offices where we can tailor a unique specification to meet your needs.

  Standard Model Options:
  IQMT-100-1 HCMOS output, without pulling
  IQMT-100-2 Clipped Sine output, without pulling
  IQMT-100-3 HCMOS output, ±10ppm to ±15ppm pulling
  IQMT-100-4 Clipped Sine output, ±10ppm to ±15ppm pulling
- -A 10 pad version
- -B 8 pad version



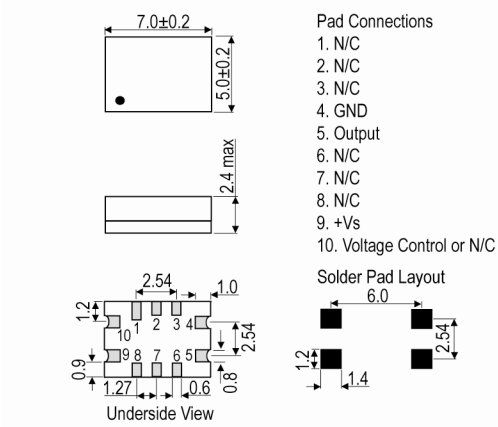
Frequency Parameters

- Frequency 10.0MHz to 50.0MHz
- Frequency Tolerance ±0.50ppm
- Tolerance Condition @ 25°C, 3.3V & VC=1.65V
- Frequency Stability ±0.05ppm to ±0.50ppm
- Ageing ±0.02ppm max per day, ±1.0ppm max per year
- Frequency Tolerance (measurement referenced to frequency observed with TA=25°C, Vs=3.3V, VC=1.65V/NC and within 30 days after ex-works)
- Frequency Stability: TA varied from over temperature, measurement referenced to frequency observed with TA=25°C, Vs=3.3V, VC=1.65V/NC, load=10kΩ//10pF/15pF and temperature variable speed less than 2°C per minute.
- Ageing: TA=25°C, Vs=3.3V, VC=1.65V/NC and after 1hr of operation.
- Supply Voltage Variation (measurement referenced to frequency observed with TA=25°C, Vs varied from 3.13V to 3.47V, VC =1.65V/NC and load=10kΩ//10pF/15pF): ±0.05ppm max
- Load Variation (5% load change measurement referenced to frequency observed with TA=25°C, Vs=3.3V, VC =1.65V/NC and load=10kΩ//10pF/
  15pF): ±0.1ppm max
- Short Term Stability (@ 25°C after 10mins power on): 2E-10/s typ @ 10MHz
- Developed Frequencies: 10.0MHz, 12.80MHz, 13.0MHz, 16.320MHz, 16.3840MHz, 19.20MHz, 19.440MHz, 20.0MHz, 25.0MHz, 26.0MHz, 30.720MHz, 38.88MHz, 40.0MHz

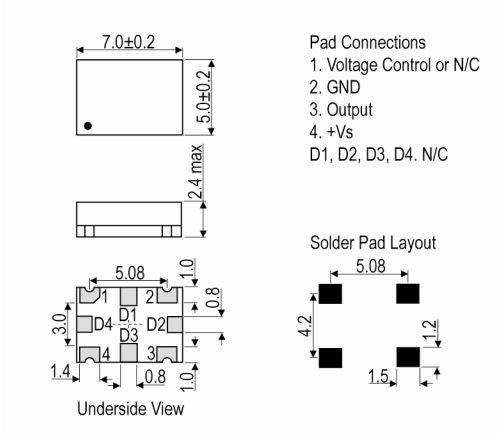
Electrical Parameters

- Supply Voltage 3.3V ±5%
- Current: TA=25°C, Vs=3.3V, VC=1.65V/NC and load=10kΩ//10pF/15pF

Outline (mm) -A = 10 pad version



Outline (mm) -B = 8 pad version



Sales Office Contact Details:

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Germany: 0800 1808 443 USA: +1.760.318.2824 Web: www.iqdfrequencyproducts.com

Frequency Adjustment

- Pulling ±10ppm to ±15ppm
- Control Voltage 1.65V ±1.65V
- Linearity: ±10% max
- Slope: Positive
- Input Impedance: 100kΩ min
- Other specifications may be available, please contact one of IQD's Sales Offices for further details (e.g. different pulling or voltage control ranges, no pulling).

Operating Temperature Ranges

- -20 to 70°C
- -30 to 75°C
- -40 to 85°C

Output Details

- Output Compatability HCMOS/Clipped Sine
- Duty Cycle (HCMOS): 45/55%
- Rise/Fall Time (HCMOS): 8ns max
- Output Load (HCMOS): 15pF
- Output Load (Clipped Sine): 10kΩ//10pF
- Output Levels (HCMOS):
  Low (@ Vs=3.3V, load=15pF): 0.4V max
  High (@ Vs=3.3V, load=15pF): 2.4V min
- Output Levels (Clipped Sine): 0.8V pk-pk min

Noise Parameters

- Phase Noise (@ 10MHz typ):
  -90dBc/Hz @ 10Hz
  -115dBc/Hz @ 100Hz
  -135dBc/Hz @ 1kHz
  -145dBc/Hz @ 10kHz
  -148dBc/Hz @ 100kHz
  -150dBc/Hz @ 1MHz

Environmental Parameters

- Storage Temperature Range: -55 to 105°C
- ESD Level:
  HBM, Class 2: 2000V to 4000V, JEDEC JS-001-2010
  Machine Model, Class B: 200V to 400V, JEDEC JS-001-2010
- Shock: IEC 60068-2-27, Test Ea: 100G, 6ms duration, sinewave, in each of 3 mutually perpendicular planes
- Vibration: IEC 60068-2-6, Test Fc: 10Hz-2000Hz, 0.75mm displacement, 10G acceleration, 1 cycle per 30mins, in each of 3 mutually perpendicular planes, test 2hrs

Manufacturing Details

- Moisture Sensitivity Level: 2
- Maximum Reflow Temperature: 260°C (30secs max)

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Ordering Information

- Frequency*
  Model Option*
  Pad Variant*
  Output Type*
  Frequency Stability (over operating temperature range)*
  Operating Temperature Range*
  Supply Voltage
  Pulling*
  (*minimum required)
- Pad Variants:
  -A = 10 pad
  -B = 8 pad
- Example
  10.0MHz IQMT-100-3-A
  HCMOS ±0.14ppm -40 to 85C 3.3V ±10ppm to ±15ppm
- Note: not all stability/temperature combinations are available for all frequencies (please contact the IQD sales office to discuss your specific requirements)

Compliance

- RoHS Status (2011/65/EU) Compliant
- REACh Status Compliant
- MSL Rating (JDEC-STD-033): 2

Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
  Pack Size: 600
- Pack Style: Bulk Loose in bulk pack
  Pack Size: 1

Electrical Specification - maximum limiting values 3.3V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
10.0MHz	50.0MHz	-20 to 70	±0.05	10	-	-
		-30 to 75	±0.05	10	-	-
		-40 to 85	±0.1	10	-	-

This document was correct at the time of printing; please contact your local sales office for the latest version.
Click to view latest version on our website.

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